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US005851832A

# United States Patent [19]

Weiss et al.

[11] Patent Number: 5,851,832

[45] Date of Patent: Dec. 22, 1998

- [54] **IN VITRO GROWTH AND PROLIFERATION OF MULTIPOTENT NEURAL STEM CELLS AND THEIR PROGENY**
- [75] Inventors: Samuel Weiss; Brent Reynolds, both of Alberta, Canada; Joseph P. Hamman; E. Edward Baetge, both of Barrington, R.I.
- [73] Assignee: Neurospheres, Ltd., Canada
- [21] Appl. No.: 486,648
- [22] Filed: Jun. 7, 1995

## Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 270,412, Jul. 5, 1994, abandoned, which is a continuation of Ser. No. 726,812, Jul. 8, 1991, abandoned, and a continuation-in-part of Ser. No. 385,404, Feb. 7, 1995, abandoned, which is a continuation of Ser. No. 961,813, Oct. 16, 1992, abandoned, which is a continuation-in-part of Ser. No. 726,812, and Ser. No. 359,945, Dec. 20, 1994, abandoned, which is a continuation of Ser. No. 221,655, Apr. 1, 1994, abandoned, which is a continuation of Ser. No. 967,622, Oct. 28, 1992, abandoned, which is a continuation-in-part of Ser. No. 726,812, Jul. 8, 1991, abandoned, and Ser. No. 376,062, Jan. 20, 1995, abandoned, which is a continuation of Ser. No. 10,829, Jan. 29, 1993, abandoned, which is a continuation-in-part of Ser. No. 726,812, and Ser. No. 149,508, Nov. 9, 1993, abandoned, which is a continuation-in-part of Ser. No. 726,812, and Ser. No. 311,099, Sep. 23, 1994, abandoned, which is a continuation-in-part of Ser. No. 726,812, and Ser. No. 338,730, Nov. 14, 1994, abandoned, which is a continuation-in-part of Ser. No. 726,812.
- [51] Int. Cl.<sup>6</sup> ..... C12N 5/06; C12N 5/08; C12N 5/02
- [52] U.S. Cl. .... 435/368; 435/325; 435/366; 435/383; 435/384
- [58] Field of Search ..... 435/240.2, 325, 435/366, 368, 377, 383, 384

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## [57] ABSTRACT

A method for the in vitro proliferation and differentiation of neural stem cells and stem cell progeny comprising the steps of (a) isolating the cells from a mammal, (b) exposing the cells to a culture medium containing a growth factor, (c) inducing the cells to proliferate, and (d) inducing the cells to differentiate is provided.

80 Claims, 3 Drawing Sheets